

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed**1.1. Name of the Data, data collection Project, or data-producing Program:**

2004 Maryland Department of Natural Resources LiDAR: Anne Arundel, Charles, Howard and St. Mary's Counties

1.2. Summary description of the data:

Light Detection and Ranging (LIDAR) is a method of locating objects on the ground using aerial-borne equipment. It is similar

to RADAR or SONAR in that the two-way travel time of an energy beam reflected off an object is precisely measured, but this technology

uses laser light instead of radio or sound waves. This technology has proven very useful in remote sensing of the earth. It can be used

for determining elevations of both the earth's surface and items (natural and man-made) on the surface. Analysis of LIDAR data is used

in detailed modeling of the earth's surface for drainage and floodplain studies, determining how a new structure will affect views from

various locations, shoreline erosion studies, and other reasons. This data set contains only the bare earth mass points. Bare earth

points represent ground features. Features that are above ground, such as buildings, bridges, tree tops, etc, have been eliminated.

Mass points may appear to have "holes" with no elevation values in areas where the surface could not be determined, such as very dense

forests or urban areas.

Original contact information:

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Contact Org: Maryland Department of Natural Resources

Title: Chief. Watershed Information Services Division

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1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2004-04 to 2004-05

1.5. Actual or planned geographic coverage of the data:

W: -76.472538, E: -75.297853, N: 39.124828, S: 37.881527

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:

NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:

coastal.info@noaa.gov

2.5. Phone number:

(843) 740-1202

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

3.2. Title:

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?**4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):****5. Data Lineage and Quality**

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Process Steps:

- LIDAR Data Acquisition. The Sanborn Map Company, Inc. flew the project area with the LIDAR sensor. Where overlaps between the two series of data occurred, the newer data was used. No attempt at blending the two datasets was made to maintain the highest data integrity. In an effort to permit correlation of the point values with tidal gauge stations, the Sanborn Map Company, Inc. was required to fly tidal shoreline areas during the low tide cycle (slack water - low tide - slack water) as predicted by local tide stations. The LIDAR sensor collected raw data that was referenced in UTM. The flight plan on this project included the following specifications to meet the project requirements: *Single pass density - 1.696 square meters per sample; *Average area sampling density -1.272 square meters per sample; *Swath width - 996.76 meters; *Flight altitude -1371 meters (4500 ft); *Flight line spacing - 498.38 meters w/50% overlap; *Scan frequency - 21 Hz; *Firing rate - 25 kHz; *Scan angle - 20 degrees; *Ground speed - 140 knots. When complete, the raw data was delivered to Spatial Systems.

- LIDAR Data Processing. Computational Consulting Systems. The First and Last Return data was delivered to CCS in large blocks of data. CCS processed the data using both the First and Last Returns, removed artifacts using automated and manual techniques, and reprojected the data into the client-specified X, Y, Z text files using the 1200 meter x 1800 meter tiles, NAD 83 meters, NAVD 88 meters. CCS also generated the Intensity Imagery using the client-specified USGS 3.75' tiling scheme. The data products were delivered to SSA for quality assurance testing, formatting and final delivery.

- LIDAR Data Post Processing. Spatial Systems Associates. SSA digitized the shoreline

from the Intensity Imagery for the purposes of delineating a shoreline. Any LIDAR points that fell seaward of this shoreline were assigned the value of zero (0). In addition to the shoreline, SSA delineated upland ponds using the same technique and assigned all LIDAR points that fell within the water area the value of the lowest observed point close to the shore. The observed elevation values were not lost - a fourth field in the data file was added for the assigned value. SSA also performed a variety of QA procedures to determine if the point density was within expected ranges; that each tile was completely filled; that all tiles were accounted for, and that the tiles were named in accordance with client specifications.

- LIDAR Data Check Point Surveys. NXL Construction Services. NXL was contracted to acquire the check-points in the 5 different land cover classes. SSA provided NXL with maps of each area where a check-point was to be located. The points were scattered throughout the project area. NXL was permitted the latitude to select the exact location based on field conditions, provided the points were generally within a 1 mile radius of the chosen location and that the land cover class was the same as the one specified. The land cover classes were: Grass/Ground, High Grass/Crops, Brush/Low Trees, Forest, and Urban/Pavement.

- LIDAR Data Quality Assurance. Dewberry LLC was provided with the check-point and LIDAR Bare Earth Mass Points data to perform their independent quality assurance work. They performed detailed analyses to determine if the vertical accuracy was within specifications and examined the data for flight, data collection and processing inconsistencies. Neither the flight vendor (Airborne 1) nor the processing vendor (CCS) was given access to the check-point data. The entire accuracy report can be found at <http://dnrweb.dnr.state.md.us/gis/data/lidar>.

- 2005-01-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received LAS files containing the point cloud elevation data from Earth Data, Inc. OCM performed the following processing on the data to make it available within the Lidar Data Retrieval Tool (LDART): 1. Variable length header records were added to the LAS files to identify projection, datum and sort order. 2. The LFIT (LDART formatted binary) files were sorted by latitude. 3. LFIT files were converted to xyz format ASCII files.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.6. Type(s) of data
- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
 - 7.1.1. If data are not available or has limitations, has a Waiver been filed?
 - 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:**6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/49782>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=27>

https://coast.noaa.gov/htdata/lidar1_z/geoid18/data/27

7.3. Data access methods or services offered:

This data set can be obtained online at the following URL: <https://coast.noaa.gov/dataviewer>;

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):

Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.